

Patent Cooperation Treaty

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PCT

Notice of Transmittal of
International Preliminary
Examination Report

(Rule 71.1 PCT)

Date of dispatch
(day/month/year) 05.05.2004

File No. of applicant or attorneys
D80266PC

IMPORTANT NOTICE

International file No.	International filing date (Day/Month/Year)	Priority date (Day/Month/Year)
PCT/EP 03/00407	16.01.2003	17.01.2002

Applicant
STOCKHAUSEN GMBH & CO. KG et al

1. Notice is hereby served upon the applicant that the international preliminary examination report on the international application is transmitted herewith by the International Preliminary Examination Agency, together with any pertinent attachments.

2. A copy of the report, together with any pertinent attachments, is being sent to the International Office for transmittal to all selected offices.

3. On request of a selected office, the International Office will prepare an English translation of the report (without the attachments) and will transmit it to this office.

4. REMINDER

To commence the national phase, the applicant must complete the procedures (submission of translations, payment of national fees) required by each selected office within 30 months from the priority date (many offices have a longer period) (Article 39(1)) (cf. the information furnished by the International Office in Form PCT/1B/301).

If a translation of the international application is to be submitted to a selected office, this translation must include translations of all attachments annexed to the international preliminary examination report. It is up to the applicant to prepare such translations and transmit them directly to the selected offices concerned.

Other details concerning the pertinent statutory filing dates and requirements of the selected offices can be found in Vol. II of the PCT Manual for Applicants.

The attention of the applicant is called to Article 33(5), which provides that the criteria for novelty, inventive activity, and commercial applicability described in Articles 33(2) to 33(4) are important only for the international preliminary examination, and that "each Member State can ... establish additional or different characteristics for the decision on the patentability of the claimed invention in said State" (cf. Article 27(5)). Such additional characteristics can include, e.g., exceptions to patentability and requirements for disclosure of the invention and clarification of and support for claims.

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AGREEMENT FOR INTERNATIONAL COOPERATION IN PATENT MATTERS

PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(Article 36 and Rule 70 PCT)

File No. of applicant or attorneys
D80266PC

FURTHER STEPS
See information on transmittal of the
international examination report
(Form PCT/1PEA/416)

International file No.	International filing date (Day/Month/Year)	Priority date (Day/Month/Year)
PCT/EP 03/00407	16.01.2003	17.01.2002

International Patent Classification (IPC) or national classification and IPC
C07C51/25

Applicant
STOCKHAUSEN GMBH & CO. KG et al

1. This international preliminary examination report was transmitted by the International Preliminary Examination Agency, and is being sent to the applicant in conformity with Article 36.

2. This REPORT consists in a total of five pages including this cover sheet.

[X] This report includes ATTACHMENTS containing pages of descriptions, claims, and/or drawings that were changed and which constitute the basis for this report, and/or pages with corrections made by this agency (see Rule 70.16 and Section 607 of the PCT Administrative Guidelines).

A total of 6 pages is attached.

3. This report contains information on the following items:

- | | | |
|-----|-------------------------------------|--|
| I | <input checked="" type="checkbox"/> | Basis for the decision |
| II | <input type="checkbox"/> | Priority |
| III | <input type="checkbox"/> | No issuance of an opinion on novelty, inventive activity, and commercial applicability |
| IV | <input type="checkbox"/> | Lack of uniformity of invention |

- V ☒ Determination, with grounds, according to Rule 66.2a)ii) with respect to novelty, inventive activity, and commercial applicability; documents and explanations in support of this determination
- VI ☐ Specific documents indicated
- VII ☐ Specific defects in the international application
- VIII ☐ Specific comments on the international application

Date of submission of application	Date of completion of report
13.08.2003	05.05.2005

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INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

International File No. PCT/EP 03/00407

I. Basis for the Report

1. With respect to the **sections** of the international application (*for purposes of this report, replacement pages submitted to the Application Office pursuant to demand under Article 14 are deemed "originally submitted," and are not attached hereto because they do not contain any changes (Rules 70.16 and 70.17)*):

Description, pages

1-52 In the version originally submitted

Number of claims

1-15 Received on 12 February 2004 with letter dated 11 February 2004

2. With respect to the **language**: All the aforementioned sections were available to the Agency in the language of the international application, or were submitted in said language, unless otherwise indicated in this item.

The sections were made available to the Agency in the ... language, or were submitted in said language, and specifically:

☐ The language of the translation submitted for international search purposes (Rule 23.1(b))

☐ The language of the disclosure of the international application (Rule 48.3(b));

☐ The language of the translation submitted for purposes of the international preliminary examination (Rule 55.2 and/or 55.3)

3. With respect to the **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence protocol:

☐ Contained in writing in the international application;

☐ Submitted together with the international application in machine-readable form;

☐ Subsequently submitted to the agency in written form;

☐ Subsequently submitted to the agency in machine-readable form.

☐ The declaration that the sequence protocol subsequently submitted in written form does not go beyond the disclosure content of the international application at the time of the application was submitted.

☐ The declaration that the information presented in machine-readable form accords with the written sequence protocol was submitted.

4. Based on the changes, the following documents were eliminated:

☐ Description, pages:

☐ Claims, numbers:

☐ Drawings, sheet:

5. ☐ This report was prepared without regard for (some of the) changes, since for the reasons indicated in the opinion of the agency these changes go beyond the disclosure content in the version originally submitted (Rule 70.2(c)).

(See item 1 for substitute pages containing such changes; they are to be annexed to this report.)

INTERNATIONAL PRELIMINARY
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6. Additional comments, if any:

V. Determination pursuant to Article 35(2), with grounds, with respect to novelty, inventive activity, and commercial applicability; documents and explanations in support of this determination

1. Determination

Novelty (N)	Yes: Claims 1-15
	No: Claims
Inventive Activity (IS)	Yes: Claims 1-15
	No: Claims
Commercial Applicability (IA)	Yes: Claims 1-15
	No: Claims

2. Documents and explanations:

See attached supplementary sheet

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Item V

Determination according to Article 35(2), with grounds, with respect to novelty, inventive activity, and commercial applicability; documents and explanations in support of this determination

1. Reference is made to the following documents:

D1: USA-4,738,943
D2: USA-4,720,474
D3: USA-4,310,704
D4: EP-A-145467

2. Novelty:

D1 (see examples I and XIV-XVI; column 6, lines 35-54) discloses a process for oxidation of 1-hexene to 2-hexanone, in which 1-hexene, oxygen, $\text{Pd}(\text{CF}_3\text{CO}_2)_2$, and Copper(II) salts are brought into contact in liquid phase based on water and acetonitrile.

The oxidation of 1-hexene to 2-hexanone in liquid phase based on water and acetonitrile in the presence of $\text{Pd}(\text{CF}_3\text{CO}_2)_2$ is also disclosed by D2.

D3 (see examples 1 and 21-28) discloses a process for the oxidation of olefins to ketones, in which olefins, aqueous hydrogen peroxide, and $\text{Pd}(\text{CF}_3\text{CO}_2)_2$ are brought into contact in ethyl acetate as solvent. The liquid phase in this reaction thus consists of water and ethyl acetate.

The additional use of a bidentate ligand $\text{X}\cap\text{Y}$ or the use of a solvent containing polyethylene glycol ether is not mentioned in D1-D3. The subject of claims 1-4, 14, and 15, as well as the subject of the sub-claims, is thus new in comparison with D1-D3.

D4 discloses a process for producing α,β -unsaturated carboxylic acids from olefins with the use of a catalyst containing a supported Pd. In the production of acrylic acids from propylene, acetone is obtained as a by-product.

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Inventive activity

The task to be accomplished by the present invention is considered to be the providing of a process for the oxidation of unsaturated hydrocarbons, in which process both allylic and vinylic oxidation products can be obtained.

It could not be deduced from the state of the art that acetone or acrylic acids can be selectively produced from the Pd-catalyzed oxidation of propylenes in the presence of the ligand RCO_2^- and $\text{X}\cap\text{Y}$, or in the presence of the ligand RCO_2^- and a liquid phase based on a mixture of protic and aprotic polar solvents. The subject of claims 1-4, 14, and 15 as well as the subjects of the sub-claims thus involve an inventive activity.